I. AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at page 2, line 10, which starts with "In accordance with a first broad aspect" with the following amended paragraph:

In accordance with a first broad aspect, the invention provides a method for segmenting a heart rate signal to identify heart rate feature events. The method comprises receiving a heart rate signal including a sequence of sample points[[,]] and processing the heart rate signal to generate a set of segments, each segment ~~being formed by enclosing a portion of the heart rate signal~~ corresponding to a respective portion of the heart rate signal identified as being enclosable in a respective bounded area. The bounded area commences at a start sample point of the heart rate signal and terminates at an end sample point of the heart rate signal[[. The]], the sample points between the start sample point and end sample point [[lie]] lying within the bounded area, wherein the bounded area for each segment has a respective length determined on a basis of at least one characteristic of the respective portion of the heart rate signal. The set of segments is then processed together with the heart rate signal to ~~generate~~ identify a plurality of distinct sections of the heart rate signal, each section being associated with a respective heart rate feature. A signal indicative of the plurality of sections of the heart rate signal is then released.

Please replace the paragraph beginning at page 2, line 31, which starts with "In accordance with another broad aspect" with the following amended paragraph:

In accordance with another broad aspect, the invention provides a system that comprises a sensor for receiving a signal indicative of a fetal heart rate and an apparatus suitable for monitoring the condition of a fetus. The apparatus comprises an input coupled to the sensor for receiving a signal indicative of a fetal heart rate, as well as a feature detection module coupled to the input. The feature detection module implements a first processing unit adapted for processing the heart rate signal to generate a set of segments. Each segment ~~is generated by enclosing a portion of the heart rate signal~~ corresponds to a respective portion of the heart rate signal identified as being enclosable in a respective bounded area, the bounded area commencing at a start sample point of the heart rate signal and terminating at an end sample point of the heart rate signal[[. The]], the sample points between the start sample point and the end sample point [[lie]] lying within the bounded area, wherein the bounded area for each segment has a respective length determined on

a basis of at least one characteristic of the respective portion of the heart rate signal. The feature detection module also includes a second processing unit adapted for processing the heart rate signal together with the set of segments to ~~generate~~ identify a plurality of distinct sections of the heart rate signal, each section being ~~indicative of~~ associated with a respective heart rate feature. The apparatus also includes a post processing module coupled to the feature detection module, the post processing module being adapted for deriving information on the basis of the heart rate features associated with the ~~set of segments~~ sections of the heart rate signal. The apparatus further comprises an output for releasing the information derived from the heart rate features associated with the ~~set of segments~~ sections of the heart rate signal. The system further comprising an output unit coupled to the output of the apparatus. The output unit is suitable for displaying the information derived from the heart rate features associated with the ~~set of segments~~ sections of the heart rate signal.

Please replace the paragraph beginning at page 8, line 12, which starts with "The fetal heart-rate sensor" with the following amended paragraph:

The fetal heart-rate sensor 110 is operative to detect the heart rate of a fetus in-utero, which is also referred to as a fetus in the womb. The fetal heart rate sensor 110 samples the fetal heart rate at a certain pre-determined frequency in order to generate a signal indicative of the fetal heart rate. In a specific implementation, the fetal heart rate signal includes a sequence of sample points each being indicative of the number of heart beats per minute at a given point in time. Fetal heart rate sensors are well known in the art to which this invention pertains and any suitable sensor for detecting a fetal heart rate may be used without departing from the spirit of the invention. As such, fetal heart rate sensors will not be described further herein.

Please replace the paragraph beginning at page 9, line 13, which starts with "A specific example of a processing unit 106" with the following amended paragraph:

A specific example of a processing unit 106 in accordance with the present invention is shown in more detail in Figure 2. Processing unit 106 comprises a feature detection module 200 and a post-processing module 202. These two modules are operative to process the fetal heart rate signal received from input 102, determine the feature events of the fetal heart rate signal, process

the feature [[event]] events to generate meaningful information and release the information through output 108.

Please replace the paragraph beginning at page 28, line 21, which starts with "Join module 1502 combines" with the following amended paragraph:

Join module 1502 combines or [[join]] joins two segments of the heart rate signal that are separated by only a short interval. For example, if two neighboring segments are separated by an interval having a duration below a certain proximity threshold duration, the join module combines these two segments to represent them as one longer segment. This is best described with reference to the specific example shown in Figure 16. As depicted, a first segment 1602 is separated from a second segment 1604 by an interval Δt. If Δt is less than the proximity threshold, then segment 1602 and segment 1604 are combined to form longer segment 1606. In a first non-limiting implementation, the proximity threshold is a constant value. In a second alternative non-limiting implementation, the proximity threshold is a linear function of the local variability.

Please replace the paragraph beginning at page 30, line 9, which starts with "In some areas of the fetal heart rate signal" with the following amended paragraph:

In some areas of the fetal heart rate signal, the sequence of segments may include sharp brief transitions where a segment is briefly displaced by a sharp brief transition, and it is the successive segment that returns to the original level. For example, a given segment may have a line of best fit that is located far from the line of best fit of the previous segment or from the subsequent segment. An example of this is illustrated in Figure 17. As can be seen, ~~segment 2~~ SEGMENT$_2$ 1700 might be better classified as a non-baseline event. As such, local jump module 1506 assigns to ~~segment 2~~ SEGMENT$_2$ 1700 an identifier indicative of a non-baseline event and assigns to ~~segment 1~~ SEGMENT$_1$ 1702 and ~~segment~~ SEGMENT$_3$ 1704 respective identifiers indicative of baseline events.

Please replace the paragraph beginning at page 33, line 23, which starts with "In the specific example" with the following amended paragraph:

In the specific example of implementation shown, the acceleration/deceleration module 1510 receives from the ~~neighbourhood baseline module 1508~~ overhang module 1512 the signal indicative of the final set of baseline and non-baseline segments and the filtered fetal heart rate signal from low-pass filter 1500.

Please replace the paragraph beginning at page 38, line 5, which starts with "An example of the bump" with the following amended paragraph:

An example of the bump detection analysis step is shown in Figure 25. As depicted, the original foetal heart rate signal 2502 is low-pass filtered to yield filtered signal 2504. The filtered signal 2504 is then high-pass filtered to yield signal 2506. The signal 2506 is then processed using any suitable known technique to detect positive and negative peaks. The positive peaks are labelled 2508 and the negative peaks are labelled 2510 in figure 25. The DC level 2512, normally at 0 beats per minute (BPM), but shifted up to 100 BPM for purposes of this diagram, intersects the signal at the dashed lines [[2414]] 2514. The dashed lines [[2414]] 2514 surrounding peaks delineate feature event time extents. Candidate accelerations and decelerations are indicated with 'A' and 'D' respectively. The rejections of a deceleration and an acceleration of insufficient areas are shown.